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Insect Control: Small Grain

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Insect control ***Small grain***

[illegible]

Cooperative Extension Service
South Dakota State University
U.S. Department of Agriculture



Insect control

Small grain

B.H. Kantack
Extension entomologist

aphids

After cool, wet springs, aphids will appear on small grain in June and from September through November on fall planted grains. Insecticides applied after the grain has headed have not proven beneficial.

Economic thresholds

Growth stage	English grain aphid or oat-bird cherry aphid	Greenbug
Seedling	30 aphids per stem	20 aphids per stem
Boot to heading	50 aphids per stem	30 aphids per stem

Granule application

Granular insecticides can be applied through a properly calibrated grass seeder attachment. **These insecticides cannot be directly mixed with the seed in the drill box.** The grass seeder tube attachments should be placed so that the insecticide is put in the seed furrow along with the seed.

Calibrate the seeder or applicator by measuring off 330 ft on the ground and catching the granules from two insecticide tubes for this distance. When the seeder is properly calibrated, you should have a total of one ounce of 15% granules or 1.5 ounces of 10% granules delivered from the two tubes over 330 ft. Use a small diameter plastic glass or tube as a measuring device. Preweigh 1- and 1.5-ounce samples and mark these levels on the measuring tube before using it in the field.

hessian fly

Hessian fly on spring wheat is a recurring, sometimes serious problem, particularly in the northeastern quarter

Aphids—greenbugs (English grain aphids, oat-bird cherry aphids, etc).

Crop	Insecticide	Dosage/A*	Remarks, precautions
Wheat	Dimethoate (Cygon, DeFend)	4 oz/A	Do not apply within 14 days of grazing, or 60 days of grain harvest.
	Di-Syston ^{1,2}	8 oz/A	Do not apply within 21 days of harvest. Post treated fields to prevent re-entry for 2 days.
	PennCap M	6 oz/A	Do not apply within 15 days of harvest.
Planting time treatment			
Winter wheat	Thimet ³	1 lb/A (as granules)	Do not feed or graze foliage for 45 days.
	Di-Syston ²	1 lb/A (as granules)	Do not graze for 30 days after treatment.
	Furadan 4F	4 oz/A	Dosage 0.5 fl oz/1000 linear ft. Apply in seed furrow using a microtube or suitable applicator to concentrate the Furadan 4F solution around the seed.
Foliar sprays			
Wheat, oats, barley	Ethyl parathion ¹	8 oz/A	Do not harvest for 15 days. Post treated fields to prevent re-entry for 2 days.
	Furadan 4F	4 oz/A	Apply before head emergence. Do not feed for forage.
Wheat, oats, barley, rye	Methyl parathion ¹	8 oz/A	Do not harvest for 15 days. Post treated fields to prevent re-entry for 2 days.
	Malathion	1 lb/A	Do not apply within 7 days of harvest.

* active ingredient per acre.

¹ Di-Syston and Ethyl or Methyl Parathion are recommended for **commercial applicators only**. Both Di-Syston and Ethyl or Methyl Parathion are highly toxic in the liquid formulations. The only insecticides recommended for ground sprayers are Cygon and Malathion because the range of toxicity is such that they can be applied safely by ground sprayers. Ground spraying equipment should be calibrated to deliver 4 to 10 gal of water. Most farm weed sprayers are satisfactory for applying insecticide sprays.

² Di-Syston is recommended if D-Syston resistant greenbugs (biotype D) are not present in South Dakota. Check with your local Extension agent for latest information.

³ Thimet is also registered for grasshopper and Hessian fly control. Di-Syston is also registered for Hessian fly control.

of the state. First brood occurs during May and June. Hessian fly also occurs on winter wheat; however we have no winter hardy, resistant variety available for South Dakota.

We recommend planting the resistant variety Guard, developed at SDSU, or Thimet or Di-Syston granules at planting time at rates suggested for aphid control.

Plowing under stubble and crop rotation are helpful in reducing Hessian fly damage.

army cutworms, pale western cutworms

Army and pale western cutworms occur from late March until early May. Endrin at 4 oz/A is the only insecticide currently recommended and labeled for cutworms. Do not harvest for 45 days. Do not feed forage or threshings.

Pydrin, Pounce, and Ambush have shown good efficacy and may receive EPA registration.

Economic thresholds

Cutworm	Wheat height	Cutworms per linear ft of row
Army	4 inches or less	2
	6 inches	4
Pale western	any height	1

grasshoppers

Grasshoppers are usually prevalent in some areas of South Dakota each year. Heavy outbreaks are likely to occur periodically where extensive acreages are infested over a wide area.

Severe infestations occur during seasons when hot and dry weather conditions prevail. Farmers and ranchers should watch for grasshoppers early in the season and initiate control measures immediately where problems exist.

Apply control early

Two general groups of injurious grasshoppers are of economic importance in South Dakota. Species of economic importance are usually

grouped into cropland and rangeland grasshoppers.

The best time to control grasshoppers is when they are small and before they migrate into cropland areas. Apply insecticides shortly after the main egg hatch is completed. There are a number of advantages in this early treatment:

1. Fewer acres will have to be treated and less insecticide is necessary to obtain control.
2. Injurious grasshopper species are killed before they have had the opportunity to injure the crops.
3. Early treatments before the grasshoppers have reached maturity prevent egg deposition, which helps reduce the potential

grasshopper threat for the following crop year.

Number of grasshopper adults per square yard.

Field	Margin	Infestation or damage category
0-2	5-10	non-economic
3-7	11-20	light
8-14	21-40	moderate to abundant
15-28	41-80	threatening to severe
over 28	over 80	very severe

The above table applies both to infestations in cropland and rangeland. Insecticide control is advised when the infestation reaches threatening levels.

Army worms.⁵

Crop	Insecticide	Dosage/A*	Remarks, precautions
Small grains	Parathion ⁴ Ethyl or Methyl	8 oz/A	Commercial applicators only. Do not harvest for 15 days.
	Malathion	1½ lb/A	Do not harvest for 7 days.
	Pennac-M	8 oz/A	Do not harvest for 15 days.
	Thiodan (Endosulfan)	8 oz/A	Do not apply after heads begin to form. Do not feed treated forage to dairy animals or animals being finished for slaughter. Follow the label for operator safety for prolonged usage.
Wheat only	Lannate or Nudrin ⁴	4-8 oz/A	Do not harvest for 7 days.
	Dylox	1 lb/A	Do not harvest for grain for 21 days.
	Carbaryl (Sevin)	1-1½ lb/A	Do not harvest for 21 days. Do not make more than two applications after boot stage.

* active ingredient per acre.

⁴ Ethyl or Methyl Parathion, Lannate, and Nudrin are recommended for use by commercial applicators only.

⁵ Economic thresholds: Treat when number of worms exceeds 5/sq ft and economic damage is evident.

Granular insecticides, grasshoppers in small grain (see calibration under aphids).

Rate	A I / A ¹	Restrictions
Thimet	1 lb	See latest insecticide label for restrictions on forage and grain harvest.
Di-Syston ²	1 lb	See latest insecticide label for restrictions on forage and grain harvest.

¹ Based on 7-inch drill spacings.

² Approved under a 24(c) label in South Dakota.

Only granular formulations of these insecticides are recommended at planting time, as liquid formulations will not give complete fall protection. A systemic treatment at planting time at recommended rates eliminates any need for a foliar spray during the growing season.

Other situations

Fall and spring tillage helps reduce grasshopper populations. Inspect all grain fields periodically and treat only areas where grasshoppers are found. Field margins and headlands are areas where young grasshoppers are usually present. In South Dakota, winter wheat fields are often severely damaged each fall; border spraying of these fields can prevent considerable damage.

Reference to products is not intended to be an endorsement. Always refer to a current pesticide label and follow its instructions as a final authority on pesticide use.

Grasshoppers

Crop	Insecticide	Dosage/A*	Remarks, precautions
Small grains	Furadan 4F	4 oz/A	Do not apply within 21 days of harvest.
	Ethyl or Methyl Parathion	8 oz/A	Experienced aerial applicators only. Do not harvest for 15 days.
	PennCap-M	8 oz/A	Do not harvest for 15 days.
	Malathion	1 lb/A	Do not harvest for 7 days.
(Wheat only)	Carbaryl (Sevin)	1-1 1/2 lb/A	Do not harvest for 21 days. Do not apply more than two applications.
Winter wheat (field borders)	Furadan 4F	4 oz/A	Follow label precautions. Apply before heads emerge. Do not feed forage to livestock.
	Sevin XLR	1-1 1/2 lb/A	Do not harvest grain for 21 days.
	Thimet 15G	1 lb/A (based on 7-inch spacings)	Apply at planting time in seed furrow with granular applicator or grass seeder attachment. Do not graze treated wheat for 45 days.
	Di-Syston 15G	1 lb/A (based on 7-inch spacings)	Apply at planting time in seed furrow with granular applicator or grass seeder attachment. Do not graze treated wheat for 30 days.

*active ingredient per acre.

South Dakota Poison Control Centers
(treatment and information)

ABERDEEN: St. Luke's Hospital, 305 South State St., Aberdeen, SD 57401. Phone: 605-225-2131.
Dakota Midland Hospital, 1400 NW 15 Ave., Aberdeen, SD 57401. Phone: 605-225-1880 or 1-800-592-1889.

RAPID CITY: Rapid City Regional Hospital (East), 353 Fairmont Blvd., Rapid City, SD 57701. Phone: 605-341-3333 or 1-800-742-8925.

SIOUX FALLS: McKennan Hospital, 800 E. 21st Street, Sioux Falls, SD 57101. Phone: 605-336-3894.